Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1: A method of evaluating a feature in a semiconductor wafer, the method comprising:

illuminating the wafer with a beam of electromagnetic radiation having a majority of energy polarized in a selected direction, said selected direction being other than parallel to a longitudinal direction of the feature, wherein the wafer comprises a layer located between a source of the beam and the feature, the layer is at least partially transmissive, so that a portion of the beam passes through the layer, and the layer is thermally conductive; and

measuring a change in reflectance of the feature due to heat transfer therethrough caused by illumination with the beam.

Claim 2: The method of Claim 1 wherein:

the feature includes a sidewall of a groove; and

the act of measuring is performed repeatedly at a plurality of locations transverse to the longitudinal direction of the groove.

Claim 3: The method of Claim 2 wherein:

the beam has a wavelength greater than thickness of the sidewall.

Claim 4: The method of Claim 1 wherein:

the beam has a wavelength greater than a dimension of the feature; and

the beam forms on the wafer a spot of a diameter greater than the dimension.

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Claim 5: The method of Claim 1 wherein:

the feature includes a trace of reflective material.

Claim 6 (canceled).

Claim 7: The method of Claim 1 wherein:

the selected direction is at least substantially perpendicular to the longitudinal direction.

Claim 8: The method of Claim 1 wherein:

the beam has a predetermined wavelength; and

the method further comprises filtering light of a wavelength other than the predetermined wavelength.

Claim 9: The method of Claim 1 wherein the wafer has a plurality of features including the feature, and the method further comprises:

performing the act of measuring for each feature of the plurality; and

comparing measurements of multiple features.

Claim 10: The method of Claim 9 wherein:

each feature is a sidewall; and

the act of comparing includes comparing measurements of two sidewalls located opposite to one another in a groove.

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Claim 11: The method of Claim 1 wherein the beam is a first beam, and the method further comprises:

illuminating the wafer with a second beam of electromagnetic radiation.

Claim 12: The method of Claim 11 wherein:

the first beam forms a first spot on the wafer, the second beam forms a second spot;

the act of measuring includes measuring with the first spot and the second spots located on opposite sides of the feature; and

the method further comprises measuring with the first spot and the second spots located on the same side of the feature.

Claim 13: The method of Claim 11 wherein:

the second spot at least partially overlaps the first spot.

Claim 14: The method of Claim 13 wherein:

the first beam has a first wavelength different from a second wavelength of the second beam;

the second beam is modulated at a predetermined frequency; and

the act of measuring includes measuring intensity of the second beam having the second wavelength and modulated at the predetermined frequency.

Claim 15: The method of Claim 13 wherein:

the first beam is polarized substantially perpendicular to the longitudinal direction.

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Claim 16: The method of Claim 1 further comprising:

forming the feature of conductive material in the wafer by using at least one process parameter;

repeatedly performing said measuring intensity; and

changing the process parameter depending on measurements obtained from the act of repeatedly measuring.

Claim 17: A method of evaluating wafers during fabrication, the method comprising:

forming a feature of conductive material in a wafer by using at least one process parameter;

illuminating the wafer with a beam of electromagnetic radiation having a majority of energy polarized in a direction other than parallel to a longitudinal direction of the feature; and

repeatedly measuring intensity of a portion of the beam reflected by the wafer at a plurality of locations transverse to the longitudinal direction;

changing the process parameter depending on measurements obtained from the act of repeatedly measuring;

determining a coefficient of a function that fits the measurements;

comparing the coefficient against a predetermined limit and performing the changing based on an outcome of the comparing.

Claims 18-37 (canceled).

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Claim 38: The method of Claim 17 wherein:

the feature includes a sidewall of a groove.

Claim 39: The method of Claim 38 wherein:

the beam has a wavelength greater than thickness of the sidewall.

Claim 40: The method of Claim 17 wherein:

the beam has a wavelength greater than a dimension of the feature; and

the beam forms on the wafer a spot of a diameter greater than the dimension.

Claim 41: The method of Claim 17 wherein:

the feature includes a trace of reflective material.

Claim 42: The method of Claim 17 wherein:

the wafer includes a layer located between a source of the beam and the feature; and

the layer is at least partially transmissive, so that the portion passes through the layer.

Claim 43: The method of Claim 17 wherein:

the beam has a predetermined wavelength; and

the method further comprises filtering light of a wavelength other than the predetermined wavelength.

Claim 44: The method of Claim 17 wherein the wafer has a plurality of features including the feature, and the method further comprises:

performing the act of measuring for each feature of the plurality; and

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comparing measurements of multiple features.

Claim 45: The method of Claim 17 wherein the beam is a first beam, and the method further comprises:

illuminating the wafer with a second beam of electromagnetic radiation.

Claim 46: The method of Claim 45 wherein:

the first beam forms a first spot on the wafer, the second beam forms a second spot;

the act of measuring includes measuring with the first spot and the second spots located on opposite sides of the feature; and

the method further comprises measuring with the first spot and the second spots located on the same side of the feature.

Claim 47: The method of Claim 46 wherein:

the second spot at least partially overlaps the first spot.

Claim 48: A method of evaluating a groove in a semiconductor wafer, the method comprising:

illuminating the wafer with a beam of light polarized in a direction P, said direction P forming an angle θ with a longitudinal direction of the groove, with angle $\theta > 45°$;

wherein the beam has a wavelength larger than a width of the groove, the groove is formed of a highly reflective material, and the groove has a first sidewall, a second sidewall and a floor between the first sidewall and the second sidewall;

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heating of the groove by a portion of the light polarized perpendicular to the groove, heat from said heating being transmitted into a substrate of the semiconductor wafer; and

measuring intensity of light reflected by the wafer, wherein light absorbed in the groove measurably reduces the reflected light.

Claim 49: The method of Claim 48 wherein:

using a measurement obtained from said measuring as an indication of a thickness of the sidewall.

Claim 50: The method of Claim 48 wherein:

with angle θ is approximately 90°.

Claim 51: The method of Claim 50 wherein:

said light reflected by the wafer is part of said beam.

Claim 52: The method of Claim 50 wherein:

said light reflected by the wafer is part of another beam.

Claim 53: The method of Claim 1 wherein:

said layer is metallic.

Claim 54: The method of Claim 1 wherein:

said layer comprises copper.

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Claim 55: The method of Claim 1 wherein:

said layer comprises tantalum.

Claim 56: The method of Claim 1 wherein:

said layer comprises a barrier layer.

Claim 57: The method of Claim 1 wherein:

said layer comprises a seed layer.

Claim 58: The method of Claim 17 wherein:

said conductive material comprises copper.

Claim 59: The method of Claim 17 wherein:

said conductive material comprises tantalum.

Claim 60: The method of Claim 17 wherein:

said conductive material forms a barrier layer during wafer fabrication.

Claim 61: The method of Claim 17 wherein:

said conductive material forms a seed layer during wafer fabrication.

Claim 62: The method of Claim 17 wherein:

said conductive material is metallic.

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Claim 63: A method of evaluating a feature in a semiconductor wafer, the method comprising:

illuminating the wafer with a beam of electromagnetic radiation having a majority of energy polarized in a selected direction, said selected direction being substantially perpendicular to a longitudinal direction of the feature, wherein the wafer comprises a thermally conductive layer located between a source of the beam and the feature; and

measuring intensity of a portion of the beam reflected at least by the thermally conductive layer.

Claim 64: The method of Claim 63 wherein:

said thermally conductive layer comprises a barrier layer.

Claim 65: The method of Claim 63 wherein:

said thermally conductive layer comprises a seed layer.

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